

**WHAT IS CLAIMED**

1       X. A method for exchanging source-to-sink data rate information in a packet-based  
2       network, comprising:  
3               receiving, by a first gateway mechanism coupled to said network, data rate  
4       information from a first communication device, said first communication device configured to  
5       operate as at least one of a source and sink;  
6               determining a first data signaling rate between said first communication device  
7       and said first gateway mechanism;  
8               receiving, by a second gateway mechanism coupled to said network, data rate  
9       information from a second communication device, said second communication device  
10       configured to operate as at least one of a source and sink;  
11              determining a second data signaling rate between said second communication  
12       device and said second gateway mechanism;  
13              forwarding data rate information containing said first data signaling rate to said  
14       second gateway mechanism; and  
15              forwarding data rate information containing said second data signaling rate to  
16       said first gateway mechanism,  
17              wherein said first communication device and said first gateway mechanism  
18       determine a first maximum compatible source-to-sink data rate based on said first data  
19       signaling rate and said second data signaling rate received from said second gateway  
20       mechanism, and

21            wherein said second communication device and said second gateway  
22            mechanism determine a first maximum compatible source-to-sink data rate based on said  
23            second data signaling rate and said first data signaling rate received from said first gateway  
24            mechanism.

1            2. The method of Claim 1, wherein said first gateway mechanism implements a delay  
2            until it has received said data rate information containing said second data signaling rate from  
3            said second gateway mechanism.

10           3. The method of Claim 2, wherein said second gateway mechanism implements a  
20           delay until it has received said data rate information containing said first data signaling rate  
30           from said first gateway mechanism.

1           4. The method of Claim 3, wherein said first communication device and said first  
2           gateway mechanism determine said first maximum compatible source-to-sink data rate by  
3           selecting the maximum data rate supported by said first communication device, said first  
4           gateway mechanism, and said second data signaling rate.

1           5. The method of Claim 4, wherein said second communication device and said  
2           second gateway mechanism determine said first maximum compatible source-to-sink data rate  
3           by selecting the maximum data rate supported by said second communication device, said  
4           second gateway mechanism, and said first data signaling rate.

1           6. The method of Claim 5, wherein said data rate information is configured as a  
2 modulation parameter sequence in accordance with any of the V series fax/data modem  
3 protocols.

1           7. The method of Claim 6, wherein said first gateway mechanism delay and said  
2 second gateway mechanism delay are implemented as a nonfunctional modulation parameter  
3 sequence.

1           8. The method of Claim 7, wherein, for half-duplex transmissions, said first  
2 communication device transmits data to said second communication device at said first  
3 maximum compatible source-to-sink data rate during a first interval of time when said first  
4 communication device operates as said source, and

5                 wherein said second communication device transmits data to said first  
6 communication device at said first maximum compatible source-to-sink data rate during a  
7 second interval of time when said second communication device operates as said source.

1           9. The method of Claim 8, wherein said first communication device and said second  
2 communication device are configured as facsimile machines operating in half-duplex  
3 transmission mode.

1           10. The method of Claim 7, further including,  
2                 determining a second maximum compatible source-to-sink data rate between  
3 said first communication device and said first gateway mechanism, based on said first data  
4 signaling rate and said second data signaling rate received from said second gateway  
5 mechanism, and

6 determining a second maximum compatible source-to-sink data rate between  
7 said second communication device and said second gateway mechanism, based on said  
8 second data signaling rate and said first data signaling rate received from said first gateway  
9 mechanism.

1 11. The method of Claim 10, wherein, for full-duplex transmissions, said first  
2 communication device transmits data to said second communication device at said first  
3 maximum compatible source-to-sink data rate and said second communication device  
4 transmits data to said first communication device at said second maximum compatible source-  
5 to-sink data rate.

6 12. The method of Claim 11, wherein said first communication device and said  
7 second communication device are configured as modems operating in full-duplex  
8 transmission mode.

9 13. An apparatus for exchanging source-to-sink data rate information in a packet-  
0 based network, comprising:

1 a first communication device configured to communicate data across said  
2 network and to operate as at least one of a source and sink of data;

3 a first gateway mechanism coupled to said network, said first gateway  
4 mechanism configured to receive data rate information from said first communication device  
5 to determine a first data signaling rate between said first communication device and said first  
6 gateway mechanism;  
7  
8

- 9 a second communication device configured to communicate data across said  
10 network and to operate as at least one of a source and sink of data;  
11 a second gateway mechanism coupled to said network, said second gateway  
12 mechanism configured to receive data rate information from said second communication  
13 device to determine a second data signaling rate between said second communication device  
14 and said second gateway mechanism;  
15 wherein said first gateway forwards data rate information containing said first  
16 data signaling rate to said second gateway mechanism and said second gateway mechanism  
17 forwards data rate information containing said second data signaling rate to said first gateway  
18 mechanism, and  
19 wherein said first communication device and said first gateway mechanism  
20 determine a first maximum compatible source-to-sink data rate based on said first data  
21 signaling rate and said second data signaling rate received from said second gateway  
22 mechanism and said second communication device and said second gateway mechanism  
23 determine a first maximum compatible source-to-sink data rate based on said second data  
24 signaling rate and said first data signaling rate received from said first gateway mechanism.
- 1 14. The apparatus of Claim 13, wherein said first gateway mechanism implements a  
2 delay until it has received said data rate information containing said second data signaling rate  
3 from said second gateway mechanism.

1           15. The apparatus of Claim 14, wherein said second gateway mechanism implements  
2   a delay until it has received said data rate information containing said first data signaling rate  
3   from said first gateway mechanism.

1           16. The apparatus of Claim 15, wherein said first communication device and said first  
2   gateway mechanism determine said first maximum compatible source-to-sink data rate by  
3   selecting the maximum data rate supported by said first communication device, said first  
4   gateway mechanism, and said second data signaling rate.

13           17. The apparatus of Claim 16, wherein said second communication device and said  
22   second gateway mechanism determine said first maximum compatible source-to-sink data rate  
31   by selecting the maximum data rate supported by said second communication device, said  
40   second gateway mechanism, and said first data signaling rate.

11           18. The apparatus of Claim 17, wherein said data rate information is configured as a  
20   modulation parameter sequence in accordance with any of the V series fax/data modem  
30   protocols.

1           19. The apparatus of Claim 18, wherein said first gateway mechanism delay and said  
2   second gateway mechanism delay is implemented as a nonfunctional modulation parameter  
3   sequence.

1           20. The apparatus of Claim 19, wherein, for half-duplex transmissions, said first  
2   communication device transmits data to said second communication device at said first

3 maximum compatible source-to-sink data rate during a first interval of time when said first  
4 communication device operates as said source, and  
5 wherein said second communication device transmits data to said first  
6 communication device at said first maximum compatible source-to-sink data rate during a  
7 second interval of time when said second communication device operates as said source.

1 21. The apparatus of Claim 20, wherein said first communication device and said  
2 second communication device are configured as facsimile machines operating in half-duplex  
3 transmission mode.

1 22. The apparatus of Claim 19, wherein said first communication device and said first  
2 gateway mechanism determine a second maximum compatible source-to-sink data rate, based  
3 on said first data signaling rate and said second data signaling rate received from said second  
4 gateway mechanism, and

5 wherein said second communication device and said second gateway  
6 mechanism determine a second maximum compatible source-to-sink data rate, based on said  
7 second data signaling rate and said first data signaling rate received from said first gateway  
8 mechanism.

1 23. The apparatus of Claim 22, wherein, for full-duplex transmissions, said first  
2 communication device transmits data to said second communication device at said first  
3 maximum compatible source-to-sink data rate and said second communication device  
4 transmits data to said first communication device at said second maximum compatible source-  
5 to-sink data rate.

1        24. A machine-readable medium encoded with a plurality of processor-executable  
2 instruction sequences for exchanging data rate information in a packet-based network, said  
3 instruction sequences comprising:  
4                receiving, by a first gateway mechanism coupled to said network, data rate  
5 information from a first communication device, said first communication device configured to  
6 operate as at least one of a source and sink;  
7                determining a first data signaling rate between said first communication device  
8 and said first gateway mechanism;  
9                receiving, by a second gateway mechanism coupled to said network, data rate  
10 information from a second communication device, said second communication device  
11 configured to operate as at least one of a source and sink;  
12                determining a second data signaling rate between said second communication  
13 device and said second gateway mechanism;  
14                forwarding data rate information containing said first data signaling rate to said  
15 second gateway mechanism; and  
16                forwarding data rate information containing said second data signaling rate to  
17 said first gateway mechanism,  
18                wherein said first communication device and said first gateway mechanism  
19 determine a first maximum compatible source-to-sink data rate based on said first data  
20 signaling rate and said second data signaling rate received from said second gateway  
21 mechanism, and



22            wherein said second communication device and said second gateway  
23 mechanism determine a first maximum compatible source-to-sink data rate based on said  
24 second data signaling rate and said first data signaling rate received from said first gateway  
25 mechanism.

1            25. The machine-readable medium of Claim 24, wherein said first gateway  
2 mechanism implements a delay until it has received said data rate information containing said  
3 second data signaling rate from said second gateway mechanism.

26. The machine-readable medium of Claim 25, wherein said second gateway  
mechanism implements a delay until it has received said data rate information containing said  
first data signaling rate from said first gateway mechanism.

27. The machine-readable medium of Claim 26, wherein said first communication  
device and said first gateway mechanism determine said first maximum compatible source-to-  
sink data rate by selecting the maximum data rate supported by said first communication  
device, said first gateway mechanism, and said second data signaling rate.

1            28. The machine-readable medium of Claim 27, wherein said second communication  
2 device and said second gateway mechanism determine said first maximum compatible source-  
3 to-sink data rate by selecting the maximum data rate supported by said second communication  
4 device, said second gateway mechanism, and said first data signaling rate.

1            29. The machine-readable medium of Claim 28, wherein said data rate information is  
2 configured as a modulation parameter sequence in accordance with any of the V series  
3 fax/data modem protocols.

1           30. The machine-readable medium of Claim 29, wherein said first gateway  
2 mechanism delay and said second gateway mechanism delay are implemented as a  
3 nonfunctional modulation parameter sequence.

1           31. The machine-readable medium of Claim 30, wherein, for half-duplex  
2 transmissions, said first communication device transmits data to said second communication  
3 device at said first maximum compatible source-to-sink data rate during a first interval of time  
4 when said first communication device operates as said source, and

5                       wherein said second communication device transmits data to said first  
6 communication device at said first maximum compatible source-to-sink data rate during a  
7 second interval of time when said second communication device operates as said source.

8           32. The machine-readable medium of Claim 31, wherein said first communication  
9 device and said second communication device are configured as facsimile machines operating  
10 in half-duplex transmission mode.

11           33. The machine-readable medium of Claim 30, further including,

12                       determining a second maximum compatible source-to-sink data rate between  
13 said first communication device and said first gateway mechanism, based on said first data  
14 signaling rate and said second data signaling rate received from said second gateway  
15 mechanism, and

16                       determining a second maximum compatible source-to-sink data rate between  
17 said second communication device and said second gateway mechanism, based on said

8 second data signaling rate and said first data signaling rate received from said first gateway  
9 mechanism.

1 34. The method of Claim 33, wherein, for full-duplex transmissions, said first  
2 communication device transmits data to said second communication device at said first  
3 maximum compatible source-to-sink data rate and said second communication device  
4 transmits data to said first communication device at said second maximum compatible source-  
5 to-sink data rate.

1 35. The machine-readable medium of Claim 34, wherein said first communication  
2 device and said second communication device are configured as modems operating in full-  
3 duplex transmission mode.